Page 15, line 12, change "G+Ccontent" to --G+C content--.

IN THE CLAIMS:

Claims 17 to 20, 22, 23 and 25 to 39, cancel without prejudice to the subject matter thereof, and add the following claims in their place:

--40. Apparatus for analyzing an undetermined sequence or undetermined sequence variant of a polynucleotide comprising a support having attached to a surface thereof an array of different oligonucleotides with defined sequences, the oligonucleotides occupying cells of the array and being attached to the surface, wherein the defined sequence of an oligonucleotide of one cell of the array is different than the defined sequence of an oligonucleotide of another cell of the array, the arrangement being such that application to the array of a polynucleotide sequence to be analyzed under hybridization conditions allows oligonucleotides which have complements in the polynucleotide to be distinguished from those which do not.

41. Apparatus for analyzing a polynucleotide, the apparatus comprising a support segregated into at least two defined cells, each cell having attached thereto oligonucleotides containing undetermined sequences ~~with known sequence~~, the oligonucleotides of each cell being attached to the surface of the support through a terminal nucleotide, where the sequence of the oligonucleotides of a first

cell is different than the sequence of the oligonucleotides of a second cell.

42. Apparatus for analyzing a polynucleotide, the apparatus comprising a support segregated into at least two defined cells, each cell having attached thereto oligonucleotides with known sequence, the oligonucleotides of each cell having been synthesized *in situ* and being attached to the surface of the support through a covalent linkage, where the sequence of the oligonucleotides of a first cell is different than the sequence of the oligonucleotides of a second cell.

43. Apparatus for analyzing a polynucleotide, the apparatus comprising a support segregated into at least two defined cells, each cell having attached thereto oligonucleotides with known sequence, the oligonucleotides of each cell having a length of 8 to 20 nucleotides, where the sequence of the oligonucleotides of a first cell is different than the sequence of the oligonucleotides of a second cell.

44. A method for generating an array of oligonucleotides of chosen lengths within discrete cells of a support material comprising the steps of

a) segregating a support material into discrete cell locations;

b) coupling a nucleotide precursor to a first set of cell locations;

c) coupling a nucleotide precursor to a second set of cell locations;

d) coupling a nucleotide precursor to a third set of cell locations;

e) and continuing the sequence of coupling steps until the desired array has been generated,

the coupling being effected at each location either to the surface of the support or to a nucleotide coupled in a previous step at that location.

42. The method of claim 41 wherein a microcomputer controlled plotter delivers the ~~nucleotides~~ nucleotide precursors to said sets of cell locations.

43. The method of claim 41, wherein the size of each discrete cell is between an average size of 10 and 100 microns.

44. The method of claim 41 further comprising the use of means for coupling said ~~nucleotides~~ nucleotide precursors to a particular set of discrete cell locations to the exclusion of other discrete cell locations.

45. The method of claim 44, wherein the said means is a mask.

49. ~~Apparatus as claimed in claim 41, 42 or 43,~~ wherein said oligonucleotides represent normal and mutant versions of a point mutation to be studied.

50. Apparatus as claimed in claim ~~41 or~~ 42, wherein the oligonucleotides have a length of from 8 to 20 nucleotides.

51. Apparatus as ~~claimed~~ in claim ~~41, 42 or 43,~~ wherein the surface of the support to which the oligonucleotides are attached is of glass.

52. Apparatus as claimed in claim 41 or 43, wherein each oligonucleotide is bound to the support through a covalent link.

53. A method of analyzing an undetermined sequence or undetermined sequence variant of a polynucleotide by the use of a support to the surface of which are attached oligonucleotides of defined sequence, said oligonucleotides being capable of taking part in hybridization reactions, said oligonucleotides being attached to different locations on the surface of said support, which method comprises applying the polynucleotide under hybridization conditions to the surface, under conditions which allow oligonucleotides which have complements in the polynucleotide to be distinguished from those which do not, and observing the location of hybridized polynucleotide on the surface associated with particular oligonucleotides.

54. The method as claimed in claim ~~53~~, wherein prior to applying the polynucleotide, the said polynucleotide or fragments thereof are labeled.

55. The method as claimed in claim ~~53~~, wherein the polynucleotide is randomly degraded to form a mixture of oligomers, the mixture being thereafter labeled to form labeled material.